

1. *Chlorophyll a* (Chl a) is the primary photosynthetic pigment in most plants and algae. It is a green pigment that absorbs light energy in the blue and red regions of the visible spectrum. Chl a is essential for the light-dependent reactions of photosynthesis, where it converts light energy into chemical energy in the form of ATP and NADPH. The structure of Chl a consists of a central magnesium atom coordinated by four nitrogen atoms in a porphyrin-like ring, with a long phytol side chain attached to one of the ring carbons.